Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Withdrawn) An energized fusion protein Fv-LDP-AE consisting of a fusion protein Fv-LDP that contains the single-chain Fv fragment (scFv) of monoclonal antibody against type IV collagenase, the apoprotein of lidamycin (LDP), the flexible spacer GGGGS between scFv and LDP, and a C-terminal His_6-tag; and an active enediyne chromophore (AE) that derives from lidamycin.

2. (Withdrawn - Currently Amended) The energized fusion protein Fv-LDP-AE of claim 1, wherein the gene sequencing encoding ~~for~~ said Fv-LDP is set forth in SEQ ID NO: 1, the amino acid sequence of said Fv-LDP is set forth in SEQ ID No: 2.

3. (Currently Amended) A method for producing an energized fusion protein, Fv-LDP-AE ~~of claim 1~~, comprising:

~~a. Preparing the fusion protein Fv-LDP~~

constructing a fusion gene by joining a DNA sequence encoding a single-chain Fv (scFv) fragment of mAb 3g11 and a DNA sequence encoding a gene for an apoprotein of ligamycin (LDP) between a DNA sequence encoding a spacer, wherein the spacer lies between the C-terminus of the scFv fragment and the N-terminus of the LDP, and wherein a fusion protein, Fv-LDP, expressed from an expression vector having the fusion gene targets type IV collagenase;

cloning the fusion gene into a specific restriction site of a pET-30a(+) expression vector creating the expression vector having the fusion gene, wherein a His_6-tag is at the C-terminus of the fusion protein, Fv-LDP, expressed from the expression vector having the fusion gene;

expressing the fusion protein, Fv-LDP, by transforming the E. coli bacteria BL21star with the expression vector having the fusion gene; inducing expression of the fusion protein, Fv-LDP, with isopropyl β-D-1-thiogalactopyranoside (IPTG), wherein the fusion protein, Fv-LDP, is about 30% of total protein after induction;

purifying the fusion protein, Fv-LDP, by column chromatography by loading the fusion protein onto a metal chelating column; washing the column with a buffer; eluting the fusion protein with an elution buffer; and dialyzing the fusion protein;

adding an active enediyne chromophore (AE) to the fusion protein by

~~b. Executing molecular reconstitution by~~ mixing the AE ~~that derives from LDM containing high percentage of AE~~ with ~~said~~the fusion protein, Fv-LDP, at a molecular ratio of about 5:1, wherein the AE is from a lidamycin (LDM) containing more AE than LDP; reacting the AE with the fusion protein at about room temperature for about 12 hours; and removing unbound AE.

4. (Currently Amended) The method of claim 3, wherein ~~said~~ the energized fusion protein, Fv-LDP-AE, is obtained by mixing a fusion protein, Fv-LDP, in a 0.01 M PBS (pH 7.0) solution ~~is mixed~~ with an AE in a methanol solution by a molecular ratio of about 1:5 and a volume ratio of about 1:50, reacting at room temperature for about 12 h~~, and the energized fusion protein Fv-LDP-AE is obtained~~.

5. (Currently Amended) The method of claim 3, wherein ~~said~~the lidamycin (LDM) comprises at least 80%~~LDM has high percentage of~~ AE ~~which is at least 80%, and preferable 90%~~ of ~~its whole chromophores~~.

6. (Withdrawn) Use of energized fusion protein Fv-LDP-AE of claim 1 in preparation of anti-angigenic and novel antibody-based, tumor-targeting medicament.

7. (Withdrawn) The use of claim 6, wherein said tumor is selected from the group consisting of solid tumors such as colon carcinoma, rectum carcinoma, esophageal carcinoma, gastric carcinoma, and hepato-carcinoma; breast carcinoma; ovarian carcinoma; lung carcinoma and renal carcinoma.

8. (Withdrawn) A pharmaceutical composition comprising therapeutically effective amount of energized fusion protein of claim 1, and optionally, pharmaceutical acceptable carrier and/or excipient.

9. (Withdrawn) A method for treating tumors in human comprising administering therapeutically effective amount of energized fusion protein of claim1 or said pharmaceutical composition of claim 8 to a patient with tumor.

10. (New) The method of claim 3, wherein the lidamycin (LDM) comprises at least 90% AE.

11. (New) A method for producing an energized fusion protein, Fv-LDP-AE, comprising:

constructing an expression vector having a fusion gene encoding a single-chain Fv (scFv), an apoprotein of lidamycin (LDP), and a spacer between the scFv and LDP, wherein the spacer lies between C-terminus of the scFv fragment and the N-terminus of the LDP;

expressing a fusion protein in a bacteria transformed by the expression vector having the fusion gene;

isolating the fusion protein; and

adding an active enediyne chromophore (AE) to the fusion protein.

12. (New) The method of claim 11, wherein the fusion protein expressed from the fusion gene targets type IV collagenase.

13. (New) The method of claim 11, wherein the fusion gene is cloned into an expression vector.

14. (New) The method of claim 11, wherein the fusion protein has a tag.

15. (New) The method of claim 14, wherein the tag is at C-terminus of the fusion protein.

16. (New) The method of claim 14, wherein the tag is a His_6-tag.

17. (New) The method of claim 11, wherein the expression vector having the fusion gene is induced to express the fusion protein with an inducing agent.

18. (New) The method of claim 17, wherein the inducing agent is isopropyl β-D-1-thiogalactopyranoside (IPTG).

19. (New) The method of claim 11, wherein the fusion protein expressed in the transformed bacteria is about 30% of total protein of the transformed bacteria.

20. (New) The method of claim 11, wherein the AE is mixed with the fusion protein at a molecular ratio of about 5:1.

21. (New) The method of claim 11, wherein the AE is from a lidamycin (LDM) containing more AE than LDP.

22. (New) The method of claim 21, wherein the lidamycin (LDM) comprises at least 80% AE.

23. (New) The method of claim 21, wherein the lidamycin (LDM) comprises at least 90% AE.